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ABSTRACT

The seven essays in this paper were submitted by winners of the CAUSE ELITE (Exemplary Leadership and Information Technology Excellence) Award. The papers reflect leadership and achievement through effective management and use of information resources. Papers include: "More Lessons from the CIO Trail: from Butch Cassidy to City Slicker," (Thomas W. West) which presents a set of leadership axioms and a professional development approach to the position of chief information officer; "Leadership in a Service Environment," (Brian L. Hawkins) which speaks to servant leadership and keeping sight of the mission; "Managing Ideas," (Bernard W. Gleason) which urges the development of formal structures for encouraging, developing, and adopting creative applications of information technology. "Organizational Leadership: Characteristics of Success and Failure," (Albert L. LeDuc) which discusses new leaders and good leaders; "Maybe Adam Smith Had It Right," (Robert C. Heterick, Jr.) which speaks to organizing to weather economic doldrums and preparing for a twenty-first century learning society; "Leading Through Influence," (Carole A. Barone) which discusses organizational characteristics; "Making It Happen: Leadership in a Transformational Age," (Patricia Battin) which examines the impact of digital information technology on the higher education community. (CH)

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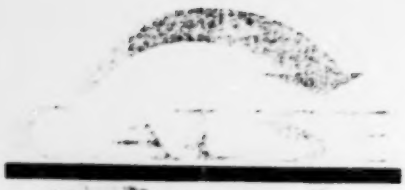

the association for managing and using information resources in higher education

Reflections on Leadership

by winners of the CAUSE ELITE Award for Exemplary Leadership and Information Technology Excellence

Thomas W. West
Brian L. Hawkins
Bernard W. Gleason
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CAUSE Professional Paper Series, #15

Reflections on Leadership

by Winners of the CAUSE ELITE *Award*

for Exemplary Leadership and Information Technology Excellence

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Foreword

The *ELITE* Award for Exemplary Leadership and Information Technology Excellence was established in 1990 as a way for CAUSE to recognize the best in our profession. Award winners are honored by their peers for outstanding achievement in enhancing the administration and delivery of higher education through the effective management and use of information resources. For this professional paper, in response to the unusual challenge that leadership presents in times of change, we asked each of the seven winners of the *ELITE* award to reflect on the nature of leadership and to share their perspective with the rest of our community. This continues and extends the CAUSE tradition of honoring and directly supporting professional achievement at all levels.

The essays that make up this paper demonstrate the exquisite richness and diversity of leadership within our profession. Each of these individuals has effectively led organizations that deliver information resource services within one or more higher education institutions, all have advanced the capacity of these institutions to better perform their missions through information resources, and they have contributed powerfully to the advancement of our ability to manage information resources on a global scale through their professional activities. Yet, when I read their individual statements, I was struck by the diversity in viewpoints, emphasis, and modes of expression. There really are many ways to be outstanding leaders. This is no cookie-cutter business.

All of these leaders have found the right philosophical and practical framework for effective leadership within their specific institutional cultures and situations, using the personal skills and talents available to them. As diverse as they are, there are some common elements to their views of leadership. None of them see leadership as "having all the answers." They all view leadership as contextual, dependent in some ways on the situations and times in which the leader functions. I think it is interesting that more than one of them used the example of taking the lead in a jazz piece, in contrast to conducting an orchestra, as a metaphor for leadership today. They search for clues as to how to make information technology leaders more effective in the executive leadership role in addition to within their own organizations. One of the most interesting similarities was the awareness of changing institutional and technical environments and new types of IT organizations, and the new leadership paradigms these require. Given that these individuals' leadership careers have spanned several decades and many institutions, they've obviously been successful themselves in adopting new leadership styles as their own professional contexts have evolved. I can't imagine a better message to communicate to members of our profession at this dynamic point in time.

Polley Ann McClure
Chair, 1996 CAUSE Board of Directors
Vice President for Information Technology Resources
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Thomas W. West, assistant vice chancellor of information resources and technology for the California State University System, won the first CAUSE ELITE *Award, in 1990. He has guided the twenty-three-campus CSU system in new directions in its strategic uses of information resources and technology to advance the mission and programs of the system and campuses, and instilled in his organization a flexible, service-oriented philosophy. Dr. West has played key leadership roles in several initiatives that will have enduring impact, both within the CSU system and at state and national levels. He participates in Educom's National Telecommunications Task Force and the National Learning Infrastructure Initiative, and has served on the Boards of both CAUSE and Educom, and on the steering committee of the Coalition for Networked Information.*

More Lessons from the CIO Trail: *from Butch Cassidy to City Slicker*

by Thomas W. West

In my remarks at the CAUSE *ELITE* Award luncheon in 1990, I characterized my journey through the world of computers and networks as being similar to the life of an old-time western cowboy riding down the trail picking up bits of wisdom from campfire musings (small informal gatherings with other information technology cowboys) and rodeo gatherings (conferences). I suggested that most of what I knew and believed about leadership in information technology was borrowed from the informal lessons that came my way.

Those remarks focused on two themes. First, I shared with the group a set of axioms about leadership that had guided my behavior and decision-making up to that time. Second, I argued that a professional development approach was needed if we were going to be successful in convincing our institutions to elevate the position of chief information officer (CIO) to the executive level, equal to the provost or chief financial officer, reporting directly to the president/chancellor and participating in the inner decision-making circle.

The portfolio of the executive level position I envisioned encompassed all aspects of information resources and technology—computing, telecommunications, libraries, media centers, and instructional technology development. In essence, this position was to provide executive leadership for integrating all the information resources and technology into the fabric of the institution.

Six years have now passed which, as everyone realizes, can amount to several lifetimes in the tools and culture of information technology. The degree and pace of change in this decade has been of historic proportions, and shows no sign of abating. So it is natural to reassess whether the leadership lessons borrowed from previous decades are still relevant for today's CIO in higher education; what the CIO's role, responsibilities, and management style might be in this emerging era; and whether the position must be at the vice presidential level.

I believe the answers lie at the intersection of changes in the state and nature of technology itself, changes to the broader institutional structure in which information technology operates, and changes in the internal culture of IT work. In other words, information technology leadership influences and is influenced by both internal and external forces, and must be understood in the context of historical change along these three dimensions. Accordingly, in this essay I will seek to answer the following questions:

1. Should the IT leadership lessons from 1990 be substantially revised in light of recent technological, organizational, and cultural changes?

The author extends his appreciation to Dr. Steve Daigle, Senior Research Associate in the CSU Chancellor's Office, for his advice and assistance on earlier drafts of this paper.

2. What were the dominant historical phases of IT's technological, organizational, and cultural development, and what leadership role and management style seemed most suited to each of these phases?
3. What new lessons about IT leadership, if any, can we draw from such a historical perspective to help shape the future for information technology and the CIO?

My basic premise is that both leadership skills and the leader's personal qualities must somehow "fit" the state of the technology, overall organization, and internal IT culture, and that such skills and qualities can be expected to change over time. Still, some leadership lessons, strategies, skills, qualities, etc. may transcend historical changes, which leads back to my 1990 remarks.

The fifteen or so lessons that I identified as axioms six years ago revolved around four major themes: power, communications, people, and planning/management. Following is a brief summary:

Power

1. Influence, not authority, equals power.
2. Information also equals power; respect people with information.
3. Be decisive; don't look back.
4. Be an agent of change, not a spectator of it.

Communications

1. Tell all to all; keep information channels open.
2. Use the informal gossip network.
3. Under-react to crisis; time itself will resolve much of it.

People

1. Give others credit when possible.
2. Focus on the individual, not the technology.
3. Learn from the best and work with the rest.

Planning/Management

1. Have a common vision and framework for the IT strategy
2. Fit information technology to the broader organizational culture.
3. Be adaptive; distinguish among planning that is strategic, routine, contingency, and opportunistic.
4. Fit projects to the amount of time available.
5. The shorter the project cycle, the better.

My initial impression is that only one of these axioms requires major modification. In most organizations (including institutions of higher education), information technology has assumed greater visibility, scope, status, and power in recent years; major drivers have been the Internet and the Web, which have attained nearly sacred significance. Rather than merely "fit IT to the organizational culture," the time is right for technology to play a major role in shaping that culture. In essence, many institutions are embracing information technology as a keystone strategy for advancing their missions and programs in the future.

While I am struck by how universal (if not self evident) the axioms still appear, I am equally convinced that the *who* and *how* of applying these lessons in the future will be significantly different than in 1990. For the twenty-five years I have been a CIO in two systems of higher education, two themes have been continuously raised by the profession. One theme has been convincing the president or chancellor and the institution's executive team to embrace information technology as a critical institutional resource and strategy. The second has been the call to have the CIO position elevated to the vice presidential level in each institution. There is increasing evidence that executives are taking ownership of information technology as an institutional strategy. However, while many in our profession believe the CIO position is becoming an executive-level position, my personal experience and observations over the past six years suggest otherwise:

- In spite of the growing importance of IT, the CIO will not and need not become a vice-presidential level position at most of our institutions. The president and/or one or more of the existing vice presidents will assume executive-level leadership for IT. At the same time, a new type of CIO will be needed to support this executive leadership.
- As IT becomes a more critical resource and key institutional strategy, the CIO's future role, responsibilities, and management style must be significantly different. As a consequence, individuals selected for this position will come from a wide range of backgrounds, and only the most broadly based and adaptable IT types will be among those selected.

Perhaps the best empirical evidence that the CIO has not been elevated to the "inner circle" executive level is found in a study of leadership and higher education CIOs performed by Gary Pitkin of the University of Northern Colorado in 1992. His survey of 153 CIOs found little evidence of an "executive mindset" or executive role behavior:

> ... the Chief Information Officer in higher education does not refer to himself or herself as a Chief Information Officer, does not have an executive level title, does not consider himself or herself to be an executive officer, is not involved in making executive decisions, and does not have responsibility for most units associated with information management.[1]

The important thing about this finding is that while the CIO (under whatever title) appears to be absent from major policy decisions involving the future of the institution, information technologies increasingly stand at the heart of institutional transformation in higher education. Therefore, rather than focus on the unanswered question of whether CIOs as a group simply do not possess the qualities and skills of executive leadership, or whether institutional structures, procedures, and customs suffer from a time-lag in how such people are viewed, we need to focus on what the leadership role and management styles of the CIO should be as information technologies take center stage throughout higher education into the future.

It might be useful to briefly consider the historical context of information technology leadership in higher education, specifically its four major phases: academic, bureaucratic, technocratic, and network-centric.

The first era (*academic)* pre-dates even the most primitive electronic technology. It was a period of faculty and liberal arts dominance in the curriculum and in the academy generally. Both the academic and administrative cultures were collegial. Because technology of any kind was peripheral to the institution's mission and operation, the technical manager found himself "odd man out" on matters of campus policy and governance.

The second phase (*bureaucratic)* coincided with the emergence and dominance of mainframe computing. Both the culture and organizational structure of information technology tended to be hierarchical. The work within IT divisions tended to be primarily focused on administrative data processing and operational functions, and IT managers were "organization men," isolated from the wider environment and from executive or policy decision-making. In the large research universities, the academic mainframe computing was usually separated from administrative computing, both organizationally and physically. Overall guidance of campuswide academic computing was provided by a collegial faculty committee of users, almost independent of campus executive management involvement. The computing center director or technical manager had a great deal of independence, save reporting to the faculty committee. In this era, the importance of information technology to the overall mission of the institution varied widely, but it still lacked strategic importance in most.

The third phase (*technocratic)* corresponds to the personal computing revolution and the emergence of campuswide networking. There was a rapid spread of information technology to the teaching and learning process (e.g., computer-aided instruction), and wordprocessing, spreadsheets, database management, and computer-based communications became integral parts of college and university life at all levels. An individualistic culture and egalitarian ethic permeated IT divisions, and technology managers began to achieve some measure of visibility and respectability in the institution. In certain instances, there were efforts to have an information technology leader coordinate several aspects of the computing and telecommunications on campus and, in rare cases, other aspects of IT. This "triumph of the nerds" brought status to information technology, but still little power in broader policy matters. The strategic importance of information technology to the overall institution was only in its embryonic stage.

The fourth phase (*network-centric)* began with NSFnet and evolved into the Internet, Web development, and technological convergence generally. Indeed, network

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[1]Gary M. Pitkin, "Leadership and the Changing Role of the Chief Information Officer in Higher Education," in *Managing Information Technology as a Catalyst of Change: Proceedings of the 1993 CAUSE Annual Conference, December 7-10, 1993*, by CAUSE (Boulder, Colo: CAUSE, 1994), 55-66. Available electronically on the CAUSE Web server at http://www.cause.org/information-resources/ir-library/abstracts/cnc9305.html

telecommunications is dominating not only the technology of this era, but increasingly the institution and culture of higher education as well. It is a period of individual empowerment over work and learning, distributed work and learning environments, virtual offices, teams, and partnerships, all heavily dependent on information technologies. For the first time, information technology has emerged from the shadows to take on vital strategic importance in the "inner circle" of institutional policy. Yet there is little evidence of the elevation of the CIO position.

What do these technological, organizational, and cultural phases tell us about the future leadership role and management styles of CIOs when coupled with the evidence that the CIO will not be elevated to a vice-presidential level? I believe the critical variables are whether one is concerned with the internal IT organization, the institution generally, or the external culture, and whether the time period is before or after the dominance of networks. Consider these six descriptive cells:

	TECHNOLOGY	
	Pre-Network	*Network-Centric*
CULTURE		
Internal IT	Captain Autocrat	Coach Team Builder
Institutional	Zealot Statesman Caretaker Interpreter	Lead IT Planner Integrator
External	Owner Advocate	Owner's Representative Advocate

As this table indicates, the CIO's leadership role and management style are projected to be radically different in the network-centric era. If CIOs are going to be effective and survive in this new environment, they need to possess a set of skills and qualities that go far beyond knowledge of and experience with information technology in higher education. Unless incumbent CIOs, "IT cowboys," are adaptable and able to change themselves in the same way they have been changing their institution's technological environments, they will suffer the same fate as Butch Cassidy and the Sundance Kid.

A new breed of CIOs is already emerging on the scene. While they may be naive about some or all of the technical facets of their new positions, as were the greenhorns in the movie *City Slickers* when they arrived at the ranch to participate in a cattle drive, these new CIOs already possess the leadership and management skills vital to leveraging information technology as an institutional strategic resource in this network-centric era. In essence, most have already demonstrated their skills as planners, managers, team builders, and executive team players in other arenas with a broad perspective of institutional strategies and vision. As quick learners, they will acquire the necessary technical knowledge about information technology to advance the institution's IT strategy. And, like the city slickers, these new CIOs possess the drive, resilience, and process skills to overcome the inertia still prevalent within our information technology and institutional cultures.

Although technology is changing at a rate that is almost impossible to absorb, an increasing number of institutions are embracing information technology as a major strategy for their future growth and competitive advantage. As a consequence, the future role and responsibilities of the CIO have less to do with organizational positioning or specific technical knowledge about information technology and more about the institutional and external perspectives as well as the leadership and management skills that the person can bring to the IT function. In that sense, the CIO has become a contributing member of an institution's executive leadership team.

Brian L. Hawkins, vice president for academic planning and administration at Brown University, won the CAUSE ELITE *Award in 1991. He was recognized for his leadership in creating a cohesive vision for information technology at Brown, drawing together a wide variety of constituencies and technology environments; for his earlier efforts at Drexel University where he led the creation of a program which made Drexel the first university in the U.S. to require access to a microcomputer for all students; and for his active leadership in the profession. A well-known speaker, writer, and consultant, Dr. Hawkins has served on the Boards of CAUSE and Educom and chaired Educom's Board of Trustees in 1989-90.*

Leadership in a Service Environment

by Brian L. Hawkins

"For who is greater, he who sits at the table, or he who serves? Is it not he who sits at the table? Yet I am among you as the One who serves." —Luke 22:27

Organizations in virtually all sectors of society are faced with "doing more with less," especially those charged with increasing service and quality within their enterprises. These same challenges are present in our colleges and universities, and perhaps are even amplified for those managers in service roles within the broad field of providing information resources.

In the industrial sectors of our society there is a historical pattern of reliance on hierarchies, of making decisions from the top down, and of having "objective" and well-defined criteria for determining organizational outcomes. Clearly, none of these patterns are particularly present in the academy, which depends so heavily on shared governance and consensual decision-making, and has a historical focus on processes rather than outcomes. While the processes and pressures facing both the industrial and academic sectors of our society may be similar, the historical and cultural contexts of higher education increase the degree of difficulty for the leader of a service unit within the university or college. The higher education service provider must meet needs defined and directed by others within the institution, and the consensual decision-making style of the academic community makes the process of defining "appropriate" service more challenging. The leader in an academic service organization is charged with being responsive to demands by a myriad of users or patrons, and yet this person must balance such demands against the constraints of budget, personnel allocations, and other resource limitations. The goal must be to help others achieve their goals. The indirect nature of this process makes the effectiveness of leadership in a service environment difficult to assess, never completely satisfying to the customer, and often frustrating to the person holding the leadership role.

Servant leadership

For some years now, experts have suggested the need to study "followership" rather than "leadership" in understanding the special relationships between leaders, followers, and the goal or mission which they are trying to achieve. A very different leadership concept—"servant leadership"—was articulated a few years ago by Robert Greenleaf when he pointed out that the very essence of leadership is a commitment to serving others, including employees, customers, and society. This commitment to

service is based upon the individual placing him- or herself at the command of the group, fulfilling their needs and goals. Greenleaf argued that leadership is, by its very nature, bestowed upon a person by the group, and that the person chosen for such a position must therefore focus on understanding the needs of the group and allowing the resulting objectives to take priority.[1]

The words "service" and "servant" come from the same Latin root, *servitium*, which means the state of being a servant or a slave to a master. The emphasis in servant leadership should be on the master as a goal defined by a group of followers, rather than on the person holding the position of master. This emphasis on serving a mission, and more specifically the mission determined by the broader community, is perhaps the most important realization to which a leader in a service environment can come. Such an approach requires the leader to constantly be in "input" mode, listening carefully, respecting the many voices within the community, and trying to understand their concerns and needs.

This notion of followership and the focus on the people "allowing themselves to be led" is expressed best by Greenleaf, as he states:

> A new moral principle is emerging which holds that the only authority deserving one's allegiance is that which is freely and knowingly granted by the led to the leader in response to, and in proportion to, the clearly evident servant stature of the leader. Those who choose to follow this principle will not casually accept the authority of existing institutions. Rather, they will freely respond only to individuals who are chosen as leaders because they are proven and trusted as servants.
>
> The active integration and adherence to the direction of "followership" is not only philosophically sound, it is also tactically smart. When a leader actively seeks out and abides by the guidance of the community, the decisions take on a different level of legitimacy. It reinforces that the leader is responsive to feedback, it makes this the "official" institutional stance and reduces the ability of critics to attack the outcome.[2]

While it is important to truly be a servant to the mission, and to follow the pointers provided by the constituencies one is serving, it is also important to recognize that there is danger in passively waiting for the directions of the followership to coalesce, and thus providing no leadership whatsoever. This is an interesting dilemma. While the "servant leader" needs to be largely driven by the desires and visions of the constituencies, there are times when conflicting views, incomplete information, and other uncertainties present no defined course. In such circumstances, it is incumbent on the leader to provide direction—not presenting it as the only solution but as an alternative that might precipitate consensus. Failure to provide such guidance is abdication of the leadership role, and yet if one overdoes this function, the entire concept and value of "servant leadership" is violated.

The leader of a service unit in an organization is much like a navigator. He or she is not the captain of the ship, and it is not his or her role to define where the ship will go. The service provider's responsibility is to keep the ship on course, but not to determine the course.

Leading within the unit

Thus far, this discussion has focused on the broad role of leadership. It is appropriate to also look at leadership within an organizational unit, specifically one focusing on information resources on campus. No matter how successful a service group may be in creating a proactive, responsive climate for the campus, the group will receive few thanks. Service is easily taken for granted; it receives the most response for its absence. If 90 percent of the needs of a campus have been met, service providers may be frustrated and demoralized to hear some irate user complain about their "incompetence" and "lack of concern" in not meeting the other 10 percent of needs. The fact that the campus may not have provided funding for them, or that this user may not know (or care) about competing priorities, rarely stops the disappointed user from "killing the messenger" and attacking the nearest possible person. Consider how often one sees people

[1]Robert K. Greenleaf, *The Servant as Leader* (Indianapolis, Indiana: The Robert K. Greenleaf Center, 1991), 4.

[2]Greenleaf, 4.

losing their tempers at an airline ticketing agent when an airplane has been overbooked. It clearly wasn't the agent's fault for the overbooking policy or the computer glitch, but the customer frustration will still have an effect on job satisfaction and motivation for the ticketing agent. Service roles wear one down. These harangues often leave one emotionally exhausted, which can lead to staff turnover and burnout.

This problem is further complicated by expectations that are always changing, as well as being elevated. Working in a service environment is similar to pole vaulting: as soon as you clear a given height, they raise the bar on you. Defining success under these conditions is a very real challenge, and a leader cannot allow this recursive dynamic to affect the morale of those who work diligently in a service organization.

As the use of technology grows, it is almost guaranteed that user demands will outstrip whatever resources are available. It is essential that trade-offs be negotiated in an informed and inclusive manner, with thorough communication of the parameters. Not only does this reduce the resentment of users who don't get what they want, it also will most likely help them couch their next requests in more reasonable and well-thought-out terms.

In a service environment, all too often people are afraid to say "no"; they fail to explain the problem of limited resources faced by virtually all service providers. The leader of the service environment should inform the demanding user of the dilemmas which the leader faces daily. Since there are trade-offs to every request, it is important to engage the user in the decision-making process: "Yes, we can do what you request, but it will require that we no longer do this other requirement which you also have. Which is more important to you?"

Keeping sight of the mission

One of the keys to servant leadership of any kind is keeping the focus on the fundamental mission of the organization. The leader cannot be too redundant in articulating and reinforcing the unit's goals and mission. President Hesburgh of Notre Dame said this well, as he explained one of the keys to a successful college presidency in attaining and keeping the support of the faculty:

> On the positive side, and more importantly, he must proclaim to them, in season and out, his vision of their institution, what it is and what it might yet be. Only they can make his dream come true, and only if they are convinced will they cooperate in the venture.[3]

A leader of any service environment must constantly keep the group's perspective on the "big picture." Staff who are caught up in the demands of daily business—the pressure to wire dormitories, to get a new service operational, or to handle a difficult hardware dilemma—cannot necessarily see the broad scope. It is incumbent on the leader to provide this perspective.

Leadership in the information resource arena of an academic institution requires helping staff understand their role in the broader educational enterprise, and finding ways to reassure them that their contributions are significant to the overall success of that enterprise. The indirect nature of their contributions often makes them difficult to quantify, but it is important to constantly remind staff that the service goal is to help others achieve their goals, thereby supporting the growth and development of students.

All too often, staff in our information resources organizations feel that their jobs are totally interchangeable with those of their counterparts in an insurance company or any other industry. They need to understand that they are part of the process of educating a new generation. One useful mechanism to reinforce this involvement in the broader educational mission is to make sure that they occasionally come into direct contact with both students and faculty, not just with the direct intermediary in their chain of service.

A primary facet of the leadership role is helping staff realize that what is important is service to a mission, not a master. This focus will allow staff to persevere even when they are criticized by demanding faculty, students, or other members of the community. The nature of the essential mission needs to be reinforced from above—not just by the leadership of the information service units, but by the academic leadership of the institution as well.

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[3]Theodore Hesburgh, "The College Presidency: Life Between a Rock and a Hard Place," *Change*, May/June 1979, 46.

Charting the course

Leadership in a service environment must extend far beyond the specific service organization (although that is critically important). It must also provide leadership for the broad usage of information resources within the community. In other words, a single person provides very different kinds of leadership across quite different communities.

This is particularly challenging in the management of information resources, where the future is rarely predictable. The leader of a service unit therefore needs to find a very narrow course, listening to the primary constituencies—the faculty and the students. He or she must not be too far ahead of nor too far behind the followers, the clients and the users. However, such leaders cannot wait for clear consensus, the likelihood of which is highly improbable. Instead, they must have the courage to deal effectively with uncertainty and to provide a "best possible" view of the future, as murky as the future of the role of information resources within the academy may be.

Bernard W. Gleason, Jr., associate vice president for information technology at Boston College, won the CAUSE ELITE *Award in 1992. Under his leadership during more than twenty years, BC has moved to a single systems image for all administrative operations. Recently, Mr. Gleason planned and implemented Project Agora, which provides universal access to voice, data, and video services for all members of the BC community. Mr. Gleason has been praised for his comprehensive, innovative solutions, his management skills, and his ability to share his vision. Among his professional activities are service on the CAUSE Board of Directors, where he held the position of secretary/treasurer in 1988, and a paper in the CAUSE professional paper series,* Open Access: A User Information System.

Managing Ideas

by Bernard W. Gleason

New ideas ... Everyone has them, and a new set is generated every day. Innovation and the challenges of constant change provide excitement in our roles as information technology managers. Hence, it is reasonable for us to emphasize the promotion of new ideas by information technology staff and to assume a major leadership role—the management of ideas. This new area of emphasis may be in conflict or contrast with traditional responsibilities for managing customer needs, managing planning efforts, managing technology facilities, and managing human and fiscal resources. Can we provide leadership in making the management of ideas a top priority while still addressing existing demands?

What is idea management?

Idea management is the provision of a formal structure for encouraging, developing, and adopting creative applications of information technology. It involves the constant modification of strategic directions in a responsive and comprehensive manner. John Kao likens the management of ideas and creativity to jazz musicians conducting a jam session: the group starts with a theme and plays off each other to form something new and harmonious.[1] The resulting creativity is fostered by a process that is disciplined but not controlled.

There is no shortage of worthwhile ideas, but most institutions do not have a methodology for or commitment to managing these ideas. As a result, there are likely to be lots of simultaneous and redundant initiatives. Some good ideas may die on the vine because the traditional planning processes do not provide enough flexibility to respond to creativity, especially the potential of information technology innovations. The lack of an organized approach can also result in some unhealthy tensions between some of the most creative individuals; two well-intentioned groups of individuals may be in conflict trying to sell different but related concepts. Management can turn this tension into positive energy by providing a structured environment of cooperation and creativity.

Idea management and information technology leadership

There are many characteristics of a good leader, including being a visionary, a planner, an organizer, a delegator, a technical expert. But in this new era of cultural change on our campuses, three leadership characteristics are now mandatory: decisiveness, willingness to take risks, and effective communications skills. In a time of uncertainty and conflicting pressures, being decisive is not easy. In a time of financial instability, taking a major risk may be desirable but hard to sell to the institutional management. In an environment where the customer population and demand for services is growing at a

[1] John Kao, *The Art and Discipline of Business Creativity* (New York: Harper Business, 1996), http://www.jamming.com/jamming.html.

steady pace, and the expectations of those customers are accelerating even faster, there are special challenges to effectively communicate with the expanding user community. Strong information technology leaders often think differently from other individuals, taking a "systems view." This kind of comprehensive approach is essential for leadership within diverse communities like ours.

The manager of ideas must be an individual who has a good grasp of information technology directions, an understanding of the critical issues facing the institution, the ability to solicit and inspire innovation, the skill to evaluate ideas in the context of the big picture, and the instinct to judge when it is appropriate to recommend a change in approach or direction. The idea manager must be the leader—the change agent.

The importance of creative people

There is a common theme among the acceptance speeches of CAUSE *ELITE* Award winners: we have all expressed our appreciation and concern for the other employees within our organizations who have contributed to our success. Each of us knows that it is the people who count. The people who should count the most in technology organizations are those who are both technically skilled and innovative. Most good ideas are the product of the personal initiative and energy of these creative individuals, the dreamers.

Many information technology leaders have developed a bond of trust with both institutional management and technology employees. There is trust that the administration will provide direction and support at an institutional level, and trust in the performance of the IT staff. Employees are rewarded by salary compensation and recognition, but they are motivated by the opportunity for individual initiative and the chance to take a risk without fear of failing. Developing and fostering an entrepreneurial spirit among all the employees is a major objective of idea management. Employees need to be able to dream and free to test these dreams against needs for improvement in service or institutional priorities.

Strategic planning and idea management

In the past, information technology leaders have developed strategic plans in conjunction with representatives from the wider campus community to provide a comprehensive management of information technology resources and a schedule of project implementations. One of the objectives of strategic planning is to align required resources with desired goals for the life of the plan. As we experience a more rapid pace of change in technology, the problems of managing resources become more difficult, and we discover the need for a more nimble and flexible process that is responsive to these conditions.

Changes that will produce technological improvements cannot be resisted just because they don't conform to the details of a plan. The traditional planning model, the type of planning that might be employed for long-term construction projects, will not work for the planning and management of information technology resources. Today's strategic plan must be a set of directions, responsive to mechanisms which modify these directions continuously as new circumstances and ideas surface and need to be incorporated into the plan.

Models of idea management outside of higher education

All institutions are feeling the effects of demands for better service, higher productivity, and lower costs. Information technology leaders at colleges and universities are being asked to address these demands while at the same time dealing with the pressures of constant change and the need to encourage innovation. The corporate world is challenging higher education to adopt new leadership role models and operating methods.

Many corporate executives serve on college and university boards and believe that our institutions can, and should, borrow business practices from the corporate world to address financial concerns. This raises serious questions for us. Can we adopt models from the for-profit sector without disrupting the positive aspects of the campus culture that have been nurtured over a long period of time? Institutions have turned to information technology leadership to provide many solutions. Attaining operational improvements without disrupting

the delicate balance of the campus culture can only be accomplished through skilled management of ideas and information technology leadership.

Business places a high premium on innovation, particularly in the application of information technology. One of the reasons that many businesses have acquired other companies is to gain access to new intellectual resources—as IBM did with Lotus, for example.[2] Many businesses have created a new position of an information technology strategist, whose primary responsibility is to determine creative uses of technology to gain competitive advantage. The business world recognizes that lasting competitive advantage will be the product of new ideas and dramatic changes, not simply incremental quality improvements or streamlining existing business practices.

Acceptance of creative thinking

For many years, information technology professionals fought to gain recognition for the importance of computing and communications on campus. To a certain extent we have reached our goal; information technology is often viewed now as the first consideration for solving any problem. In their pursuit of acceptance, technology leaders also pushed for a greater involvement in the governance of the institution, and we have seen the creation of positions at the cabinet level at many institutions, with the reorganization of all technology-related units under this position. The promise of this new organizational structure has been better and more-coordinated planning. In many cases, that promise has been realized, but now institutions are looking for a bigger payback from information technology. Institutions expect information technology leadership to provide improved service and productivity and solutions to decrease costs without disturbing the positive aspects of the campus culture.

Many information technology managers feel that their only major responsibilities are customer service, running a good shop, and seeking some small but continuous increments of improvement. They have underestimated the requirements for technology leadership. Just doing the same job better is not going to be a successful strategy. While it may be true that customer and management expectations are too high, these expectations are real. It is very possible that the public assessment of the information technology leader's effort to meet those high expectations will conflict with the information technology leader's personal goals and interests and those of the information technology staff.

Educating the customers

Information technology leaders often try to "sell" technology and new ideas to audiences who have different agendas or perspectives. Senior executives who have only a basic understanding of the application of information technology have a difficult time evaluating ideas that are based upon envisioned advances in technology. Many senior administrators, though limited users of technology, now have a conviction—or at least a sense—that technology is going to be an important factor in improving both the business and the learning processes on their campuses. Executives at our institutions who have historically been disinterested in technology applications are now a very willing audience. This attitude reversal is positive, but the next step is not a simple one.

Many information technologists have a good idea where technology is headed but do a poor job of communicating those ideas and plans to their customers—executives, faculty, students, and staff—because they fail to choose the appropriate communication medium and language for each audience. Being open and honest is the best way to maintain their respect. This open communication makes it clear that our primary concern is the needs of our customers.

The World Wide Web has had a subtle but profound effect on the way we think and communicate. Over time that same effect will be experienced by the community at large. There is a growing acceptance of the Web for many reasons, but for new users of technology it has particular appeal: the Web is easy to use, and it is intuitive. The Web also allows (in fact, encourages) readers to browse around in the same manner as they would read a newspaper—unlike the traditional report to management, which is usually in business language and structured to be read from front to back. This freer structure allows us to explore new ways to organize and communicate thoughts and ideas to varied audiences. As an ex-

[2]Kao, http://www.jamming.com/manage.html

ample, my own thoughts regarding plans and directions for information technology are published on the Web (http://www2.bc.edu/~gleason) with the objective of providing an open forum for discussion of new ideas and the education of the user community. The public posting also serves as a subtle way of fostering a behavioral shift in the way we communicate.

A challenge to leadership

Practically speaking, it is likely that the responsibility for idea management will reside as an unofficial duty of the information technology manager. Most information technology managers, though interested in new advances, are caught in the dilemma of attending to current demands for resource management. In addition, most will be reluctant to surrender their traditional duties for fear of loss of control. The predictable outcome will be little or no time dedicated to idea management.

Ideally, the duties for information technology resource management and idea management should probably be divided. Idea management is not about control; it is about management and cooperation. It provides a structure for the continuous involvement of all information technology staff in fostering a unified, enlightened approach to the application of information technology. If idea management is truly to be treated as a major and primary role, the information technology leader must be willing to relinquish direct responsibility for the management of information technology resources.

Significant improvements in the functioning of the institution are going to be based on effective management and implementation of new ideas. This will require shifts in the mindsets of executive decision-makers, information technology customers, and the technology staff. The innovative and technically skilled members of the information technology staff, the people who really count, must be supported through an environment that is entrepreneurial in spirit but managed to exploit the full potential of advances in information technology.

Albert L. LeDuc, director of computer services for Miami-Dade Community College, won the CAUSE ELITE *Award in 1993. In over sixteen years of involvement with computer services at one of the largest community colleges in the U.S., Mr. LeDuc has earned the respect of his staff and colleagues for his ability to provide technological solutions to his institution's unique needs while supporting its primary mission of teaching and learning. He is generous in contributing time and efforts to his profession. He has chaired the CUMREC Board of Directors and served as secretary/treasurer to the CAUSE Board; one of his numerous articles won the 1986* CAUSE/EFFECT *Contributor of the Year Award.*

Organizational Leadership: *Characteristics of Success and Failure*

by Albert L. LeDuc

" ... ardent, intelligent, sweet, sensitive, cultivated, erudite. These are the adjectives in an androgynous world. Those who consider them epithets of shame or folly, ought not to be trusted with leadership, for they will be men hot for power and revenge, certain of right and wrong."

— Carolyn Heilbrun[1]

I've devoted a great deal of thought to the fact that I was awarded the *ELITE* Award by CAUSE in 1993. One reason for my reflection is that, as a fundamentally self-effacing person, I never expected the concept of "leadership" in information resource management to include my style of leadership. And yet, it was recognized. And it is also true that, with a management career spanning over thirty years, I know that my leadership style works. So when I was asked to contribute an essay to this collection, I leaped at the opportunity to try to explain some of what I think the successful leader is and does—in particular, what kinds of attitudes maximize long-term organizational success.

Does a leader supply vision? This is the Gatesian model and who can argue with billionaire success? Is a leader exhortative (Churchill)? Is a leader comfortable and avuncular (Reagan)? Does a leader need fully devoted followers (Gandhi)? Is a leader a talented salesperson (Iacocca)? In some cases, in some times, any of these models may be suitable for information resource management leadership. But organizations in our field require a deft kind of leadership for the long run. After all, if we are running organizations whose people have the comic strip character Dilbert as a hero, we can't expect success with a fully directive leadership style or even one that conforms to what the business world usually calls "leadership." In short, we are called to listen to Carolyn Heilbrun and others who argue that today's leaders need to be multi-talented, fully aware of their field, but, most importantly, fully aware of the interpersonal skills that yield organizational results. Getting things done is the demand placed on us. Leadership that is conscious of its power but doesn't require personal ego satisfaction is the answer. No longer true is the old "folk wisdom" management dictum,

I'm the boss— / Do it my way
Or if you'd prefer / Hit the highway.

[1]Carolyn Heilbrun, *Toward a Recognition of Androgyny* (New York: Alfred A. Knopf, 1973), 123.

In fact, rather than being a "boss," successful leadership now calls for being a guide, a counselor, a facilitator, or a coach. What does that mean, really?

The New Leader

First of all, leaders these days are *fully supportive* of their organizations. Sometimes that means paying close attention to the overall institutional goals, trends, and climate, so that communication and action can be consistent and perceptive. But I want to turn this conventional idea of support around. I really mean that leaders work at assuring organizational health for the people who are within their responsibility. As someone has said, "bad managers expect the organization to support them, while good managers support their organization." It is a serious question of who the leader really works for—and the answer should be the people who work in his or her own line of responsibility.

Kent Keith, the former president of Chaminade University, in an astonishing article in the APPA publication *Facilities Management,* calls for a leadership defined by service:

> The servant leader does not go around asking, "How can I get power, how can I make people do things?" The servant leader asks, "What do people need? How can I help them get it? What does my organization need to do? How can I help my organization do it?"[2]

I really cannot express a central theme of healthy leadership any better than Mr. Keith does. I recommend his article for a fuller understanding of an old but increasingly proper leadership standard.

Additionally, superior leaders *establish an environment* in which talent can develop. This seems to be an amazing revelation to lots of people. Are we stuck in a mode in which we expect our leaders to always play Teddy Roosevelt, leading the charge up San Juan Hill? I would hope not. This wistful hope that somehow the leader would be the vanguard of change reminds me of the short-lived phenomenon about fifteen years ago in which the head of computing in colleges was called the "computer czar." I suspected joviality dictated that term, but it came to a quiet end when some wag noted that "czars are the ones who get beheaded, aren't they?"

In a recent letter exchange in the *Wall Street Journal,* Russell Curry noted that "Management is not about 'doing': it is about creating environments where 'doers' can succeed. Only ego run amok would claim that managers, not workers, are on the frontline."[3] This kind of thought implies an important corollary—leaders succeed only when the workers succeed.

A related characteristic that leaders must have, particularly to create any lasting legacy, is a *belief in continuity.* In my acceptance speech for the *ELITE* Award I noted that I was especially grateful for the fact that several long-term key employees provided me with support.[4] That kind of sustenance of excellence does not happen except by design; people in an organization need to be supported by a nurturing and healthy environment. Cultivating that environment calls for dedication to professional development, to the establishment of standards, to cross-training, to an understanding of communication and mutual support. Too often we get caught up in dealing with tasks and projects and don't devote enough time, effort, and resources to maintaining organizational health.

Some managers seem to have as their motto, "If it ain't broke, it's time to break it." In fact, there are prominent people who advocate turmoil as a means to increase productivity or creativity. And yet, the natural change inherent in any modern environment is sufficient to force the lithe organization and its leader to make continuous adjustments without additional prompting by random acts of disruption. There really is no need for the confusion induced by fruit-basket-turnover schemes. If everyone is constantly looking behind them to react, they don't have the energy or will to move their own activities forward. Constant improvement is the goal, not constant chaos.

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[2]Kent M. Keith, "Call to Servant Leadership," *Facilities Management,* Fall 1995 (Alexandria, Virg.: APPA: The Association of Higher Education Facilities Managers), 24ff.

[3]Russell Curry, "'Dilbert' Reflects Reality for Frontline Workers," *Wall Street Journal,* 17 October 1995.

[4]Albert LeDuc, "People Are What Really Matters," *CAUSE/EFFECT,* Spring 1994, 10ff.

The leader that we want to emulate is *unpretentious.* It is always a mistake to assume that the leader is the cleverest or wisest person in the organization. That is an especially horrible form of hubris when the leader believes it. Many observers trace corporate failures to this kind of prideful conceit. An instructive recent book, *Why Smart People Do Dumb Things,* elaborates on this "self-destructive intelligence syndrome," a result of narcissism and arrogance.[5] While higher education does not have quite the highly publicized failures that the authors describe, such as New Coke, the book still provides guidelines and cautions we could all learn from.

Everybody wants a boss with whom they can be open enough to say, "That's an incredibly stupid idea" when it really is an incredibly stupid idea. Almost nobody has that kind of boss, because there is too much ego tied up in the boss's ideas. True leaders know that an understanding of their own limitations is essential to leadership.

Recently, there has been considerable attention focused on the idea that good leaders should be *authentic.* Authenticity carries over into an understanding by staff that leaders are what they seem. Certainly that means sincerity and honesty, and the building of mutual trust. Most people who talk about authenticity also mean that leaders who seem to be empathetic are so, that they are not seeking personal advantage by manipulation, that they are straightforward. They don't mean that the person who claims to be a Theory X directive manager, sure enough, is consistent and acts like a rotten boss. Leaders who are genuine (authentic) almost never have people in their organizations who are searching for ulterior motives in proposed projects or plans. That's healthy.

Authenticity has a special association in information resource management. Leaders cannot claim to be technical experts if they are not. Because technical expertise in our fields is never all-encompassing and is subject to an incredible pace of change, leaders need to be adept listeners and receptors to understand and communicate technical matters accurately.

Superior leaders believe in and use *empowerment.* "Empowerment" is starting to get a bad press, chiefly because it sounds like some sort of touchy-feely solution to organizational problems. Additionally, some of the manifestations of empowerment have been short-term fads. I also suspect that, to some people, it sounds like the abandonment of leadership. And yet, it makes eminent sense for work groups to be able to have a say in the work rules, standards, processes, and activities that affect them. Today's work force increasingly expects (and deserves) to be part of the team.

Larry Conrad and Sheila Murphy, in the Summer 1995 issue of *CAUSE/EFFECT,* have written the definitive article on team-building in our environment. Their article addresses the challenges that this type of philosophy faces and concludes that

> Those managers who are solely control-oriented may not survive the transition. ... Teams will only hasten the process, as we transform our organizations into more enlightened institutions that treat people as adults who have productive and innovative contributions to make.[6]

Good leaders are *sensitive to needs* within their areas of responsibility. This was recently brought home to me through a carpet replacement program in our office area. The excitement generated by this upgrade was something I was not as sensitive to as I should have been. But thanks to the leadership and perseverance of two key managers, the morale—and, doubtless, the productivity—of this 160-person office area has soared.

A recent article termed this kind of situation "spirituality in the workplace," by which the authors characterize a whole series of leadership activities that emphasize ethics, morality, accountability, honesty, loyalty, joy, and dedication.[7] While that may or may not have religious connotations, the emphasis is intended to be on

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[5]Mortimer R. Feinberg and John J. Tarrant, *Why Smart People Do Dumb Things* (New York: Fireside, 1995).

[6]Larry Dean Conrad and Sheila Murphy, "The Manager's Changing Role in a Teams Environment," *CAUSE/EFFECT,* Summer 1995, 47ff; http://www.cause.org/information-resources/ir-library/abstracts/cem9529.html

[7]"Spirituality in the Work Place," *Administrator,* December 1995, 5. Original source: *Arizona Business Gazette,* 19 October 1995.

values, both the individual's and the entire organization's. An important point of this focus is that having fun at work goes a long way to encouraging creativity and easing stress.

It is difficult to write an essay such as this without loading it with platitudes. In spite of myself, I cannot resist the old bromide that "to be a true leader you need to have people working with you instead of for you." But perhaps the single greatest piece of wisdom about leadership is in a quote I keep in the top drawer of my desk:

> If anything goes bad, I did it.
> If anything goes semi-good, then we did it.
> If anything goes real good, then you did it.
> That's all it takes to get people to win
> football games for you.
>
> — *Paul "Bear" Bryant*

It is my hope that leaders far into the future will still be "winning football games" for their institutions. They will, if they provide the kind of leadership that institutions need and deserve: a fundamental, heartfelt desire to facilitate and serve rather than impose and dictate.

Robert C. Heterick, Jr., president of Educom, won the CAUSE ELITE *Award in 1994. He received the award for the range and significance of his contributions to the profession, beginning with over thirty years at Virginia Tech where he held professorial rank in three different colleges, chaired two departments, directed a laboratory, and served as vice president for information systems. He has chaired the board of the Blacksburg Electronic Village, bringing high bandwidth Internet connectivity to the town of Blacksburg, Virginia, and has served on the CAUSE Board of Directors, both as vice chair and as chair. He was instrumental in the founding of the Coalition for Networked Information, has published frequently in CAUSE publications and elsewhere, and is a frequent speaker.*

Maybe Adam Smith Had It Right

By Robert C. Heterick, Jr.

One of the current conundrums in higher education has to do with how to organize the enterprise so as to weather the current economic doldrums and prepare the enterprise for a 21st century learning society. The polar extremes are represented, on the one hand, by those who feel that all we need do is infuse more resources into the current paradigm and everything will return to normal and, on the other, by those who believe that a quick fix is at hand through the process of connecting every classroom to the Internet. Neither viewpoint understands the systemic unpreparedness of higher education to enter the information age.

There is a delightful Gary Larsen cartoon that shows a large, random pile of horses and cowboys in the middle of a western street. The sheriff is admonishing his deputy in front of the saloon saying, "No, I told you, you have to organize a posse."

The defining organizational paradigm for the industrial age occurred early in the 20th century with the work of F. W. Taylor on scientific management and the development of the assembly line by Henry Ford. Since that time, a good many organizational theorists have refined the basic command-and-control model of the organization–some softening its rough, militaristic edges, some arguing for a more "scientific" foundation, some trying to put a human face on an otherwise mechanistic organizational viewpoint, and many expounding financial controls as the governor of the hierarchical organization.

Late in the 20th century we have been bombarded with the management theory du jour– quality circles, zero defects, zero base budgeting, total quality management, best practices benchmarking, and a host of others. They have all fallen short, perhaps with the exception of reengineering, because they haven't understood or internalized the lessons of networking. The governing motivators of networking are not capital, or command and control, but rather diffused information and self-serving cooperation. The clear logic of the network in hardware is to push as much of the intelligence out to the nodes as possible. The manifestations in software are client/server, groupware, and the World Wide Web. The operating strategies of networking are not designed to manage complexity but rather to permit the interoperation of simple elements.

The organizational theory that will successfully dominate the world of networking has less to do with management and more to do with leadership– not leadership in the charismatic sense that comes from the top, but leadership that exists and operates throughout the organization. Such leadership is frequently not "scientific" or the result of a formal planning process but more heuristic, resulting from a "hands-on" relationship with particular work processes– what Shoshana Zuboff[1] has called "informating" the workplace.

[1]Shoshana Zuboff, *In the Age of the Smart Machine* (New York: Basic Books, 1988).

Leadership has historically been viewed as the province of executive management because only they had a sufficiently broad and holistic view of the enterprise to establish directions, promulgate the mission, and organize the workforce to propel the enterprise into the future. Such a viewpoint is probably consistent with a hierarchically structured workplace featuring tightly compartmentalized division of labor, primarily one-way communication, and relatively stable and well defined markets, customers, and workforce.

The information age demands, and will enforce, a transition to empowered employees throughout the organization. The organization will be successful to the extent those employees are informed and are free to exercise leadership, and capable of doing so. The organizations faced with the most difficult transition to the information age are likely to be those that never really bought into the industrial age management paradigm—parts of the public sector, with higher education and health care being the two most obvious examples. These organizations developed all sorts of work-arounds to compensate for their decision not to assume the command-and-control model. Absent the more immediate feedback that comes with private sector market elasticity, they tend to be far more inertia-bound than their aggressive private sector cousins, particularly than the high tech industries that currently drive the economies of developed countries.

Overcoming the inertia of institutions of higher learning will not be easy, and the evidence in so far from the past decade suggests that leadership that comes only from the top won't be successful. In considering why, one conclusion is inescapable—the work-around organizational structure of generally autonomous faculty organized into departments has a different objective function than that of the organization taken as a whole. Higher education substituted a political process of special interest lobbying for the command and control model. In periods of increasing resources, a departmental focus on "faculty quality" is not too much at variance with general organizational goals. In periods of resource constraints, the self-aggrandizement objective function of the departments is frequently at significant variance with the cost minimization, student retention, instructional productivity, or other goals of the overall organization.

In a crosscut matrix of mission goals and organizational structure you can identify the contribution of the organizational structure to the goals. What you can't seem to do is change that contribution. We shouldn't be too surprised at this as long as we fund the organizational structure, not the goals. This is particularly the case in higher education, where we fund departments which have little if any incentive to understand overall organizational goals, much less modify their own local sense of importance or objectives to enhance those of the global organization. To be fair, there also seems to be little effort expended by the executive management of the institution to make departments aware of global threats and opportunities.

It is time to discard old management models and replace them with structures more suited to the information age. Only by finding structures that achieve overall organizational goals as a by-product of accomplishing personal goals will we be able to rationalize the reward system of the academy and make the transition from our current institutions into those of a learning society. Maybe Adam Smith had it right when he observed in *The Wealth of Nations* over two hundred years ago, "As each person intends only his gain, he is ... led by an invisible hand to promote an end which is not his intention.... By pursuing his own interest he frequently promotes that of society more effectively than when he really intends to promote it."

Increasingly, our organizations take on the shamrock characteristics first identified by Charles Handy.[2] For most academic institutions, the bulk of employees continue to be housed on site as in the conventional industrial age model. More and more often we will find institutions breaking through their high degree of vertical integration as self-sufficient communities and beginning to outsource non-mission-critical functions such as food service and residence hall operation. In many cases there will exist a very tight coupling between the institution and strategic suppliers. The third petal of the shamrock

[2]Charles Handy, *The Age of Unreason* (Boston: Harvard Business School Press, 1989).

will be apparent first as telecommuters. As institutions of higher learning become less place-bound, these telecommuters may be augmented by non-local adjunct faculty, new knowledge-work suppliers of services such as accounting or enrollment management, and eventually even organizations and individuals providing such things as course design, counseling, and assessment.

Other commentators have characterized academic institutions in a somewhat similar vein. Robert Zemsky and William Massy have referred to expanding perimeters and melting cores.[3] In their analysis, much of the perimeter of the institution has adopted new managerial strategies to permit it to operate in an entrepreneurial fashion, while the core of the institution steadfastly retains a management style less suited to modern enterprise and less able to utilize the leadership and entrepreneurial talents of its employees.

As we gravitate from tightly proscribed job functions there will be an increasing demand for employees to demonstrate leadership in their respective spheres of operation and influence. Current experiences suggest that this transition will be difficult: while most members of the academic community express a desire not to be managed, they at the same time continue to want to exercise management control over others who work in their areas of assigned responsibility. Working collaboratively too frequently seems to be at variance with both the industrial age model of hierarchical organizations and the fiercely independent operation of faculty as individual contractors.

Nearly fifteen years ago I made some observations in an article for *CAUSE/EFFECT* that seem every bit as relevant today as they did then:

> The university operates at the cutting edge of technology and knowledge. It draws people into its parts who are exceptionally knowledgeable and highly motivated. The problem is not so much to manage these people (in fact, that is probably exactly the wrong thing to do) as it is to manage the physical environment and communications links that tie them together.[4]

In order to tap the entrepreneurial spirit of our colleagues we need them to exercise leadership. The environment to foster that leadership is what we might call creative tension or controlled dissonance. It is the "anarchy" of a marketplace that encourages each individual to exercise leadership in his or her sphere of activity. In the spirit of Adam Smith, we will likely find that such behavior—within a thoughtfully aligned reward and incentive system—promotes the goals of the organization and the individual more effectively than even the most artfully crafted plans of some central authority.

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[3]Robert Zemsky and William F. Massy, "Toward an Understanding of Our Current Predicaments," *Change*, November/December 1995.

[4]R. C. Heterick, "Administrative Support Services," *CAUSE/EFFECT*, November 1981, 28-32.

Carole A. Barone, associate vice chancellor for information technology at the University of California, Davis, won the CAUSE ELITE *Award in 1995. She has been influential in harnessing information resources to the service of higher education, orchestrating transformations in the two universities she has been affiliated with. During her six years as the CIO for Syracuse University she and her staff created a campus network, and by the time she left, all administrative information systems were online and interactive. At UC Davis she led the design and implementation of a distributed computing architecture and an ATM network. She is active in systemwide UC initiatives, has chaired the CAUSE and Educom Boards, and currently chairs the CAUSE Professional Development Committee.*

Leading through Influence

by Carole A. Barone

Recently, when I mentioned to some staff members that I hesitated to give them my view on a matter because I wanted them to reach their own conclusions, they responded that I shouldn't worry because they did not feel compelled to do what I suggested. Actually, it was more along the lines of, "Don't worry, Carole, we never listen to you anyway." I replied that I was certainly reassured to hear that because it indicated that I had acquired the characteristics of a 21st century leader.

Later that day, I participated in a long working meeting with staff trying to figure out how to rig the ancient campus accounting system to record and report data that accurately represented our IT organization's network or web of programs and projects. Anyone who has tried to justify rates for programs that cross functional unit lines knows the magnitude of the problem. We finally reached the conclusion that for our purposes, we needed to design the system of record around our fishnet structure and then use a shadow system to re-sort the data by function for those on campus who had trouble relating to the fishnet organization.

As much as we would like to believe otherwise, people respond to style and to form. The media have taught us that lesson well. Who does not know the story of the first Nixon/Kennedy debate? Who has not heard comments along the lines of, "He would make an excellent president; he plays the leader role so well," or "He carries himself like a leader"?

This notion of the importance of style and form applies to organizations as well. These are interesting times for IT leadership. Leadership in information technology organizations in higher education is taking on a unique set of characteristics as IT leaders adjust their styles to become more effective change agents on their campuses.

As an example, take the operational realities of a flattened organization. In the past we focused on organizational structures, management techniques, and processes; on reengineering the organization. We thought of and described our organizations in mechanistic terms. The characteristics in the column labeled "old" in Figure 1 illustrate the mechanical view of the IT organization. However, in recent years a good deal of management literature has applied aspects of the biological model to organizations. Such work has been largely overshadowed by the hype associated with the three-letter management technique of the moment, e.g., MBO, TQM, BPR, RCM....[1] We gravitate to these techniques and methodologies because they fit our assumptions about how organizations should work. According to the mechanistic paradigm, organizations can be engineered and, thus, fixed by applying a technique or formula, by retooling.

Others, however, argue that reengineering efforts are doomed to failure, that what we really need to change is

[1]These acronyms mean, respectively, management by objective, total quality management, business process reengineering, and responsibility-centered management.

the "way we change." Margaret Wheatley suggests an organic restructuring of organizations around natural processes to produce a dynamic, ever-changing, creative organization that will naturally seek to thrive in its environment.[2] Instead of concentrating on the management of information, we should focus on "managing by information," i.e., adjusting and adapting organizational style and form in response to information garnered from the environment in a manner similar to the adaptation of biological organisms. These knowledge-based organizations are self-adjusting; they are able to respond quickly to the continuous and the discontinuous, i.e., change that is disconnected from what has gone before, change so common to the information age.

Information technology organizations are quickly making the transition to the organic model because they have been forced, by virtue of their need to keep pace with the rapid speed of technological change, to become nimble. The new style of IT organization is generally defined by the characteristics shown in the column labeled "new" in Figure 1. The distinctive elements listed in this figure appear repeatedly in current literature dealing with organizational change in general, as well as in that specific to IT organizations.

Figure 1

IT Organizational Characteristics

OLD		NEW
Linear & Predictable	->	Dynamic
Controlling	->	Enabling
Internal Efficiency	->	Customer Satisfaction
Tactical	->	Strategic
Parents/Providers	->	Partners
Managing Technologies	->	Managing Relationships
Hierarchical	->	Flat
Waterfall Decision-making	->	Spiral Decision-making

The role of the leader in the flattened, knowledge-based organization is one of guide and counselor. One of our IT directors wrote recently in her self-evaluation:

> Flattened organizations obviously don't allow time for specific directions but people still need guidance. The art is to provide that guidance in a transparent manner so they can think they have reached their common milestones on their own. Many say their goal as a manager is to be unnecessary. I think they don't understand what is required of a new age manager. Human characteristics require some glue to have individuals move forward toward organizational goals. I think I'm on my way to super glue status.[3]

A growing majority of staff members in such organizations take their empowerment for granted. Once they have made the transition to the organic style, these staff members quickly recognize, strongly resist and, indeed, resent attempts by any leader to play the commander role. Lana Moffitt frequently reminds me that "We are just making it up as we go along." Peter Drucker would agree. In a provocative interview he asserts that we are moving beyond the metaphor of the opera, which uses a score to "glue" together the different groups, e.g., soloists, chorus, orchestra, to that of "a really good jazz group ... people who improvise on their own and the group realizes that the trumpet player is now playing his solo and everybody needs to stop and support him."[4]

Staff members in such organizations become increasingly intolerant of their more passive and deferential colleagues in other organizational units which are still functioning under the old hierarchies. Consequently, IT staff often find themselves out of sync with the norms and conventions of the larger institution. This causes the information technology organization to be viewed and to view itself as being isolated, and sometimes alienated, from the rest of the institution.

IT leaders face a dilemma. The very characteristics that make their organizations capable of meeting the technological requirements of the campus often serve to place them at odds with the institution's culture and values. For the IT organization to assume a position of leadership on the campus, the community must trust IT.

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[2]Margaret J. Wheatley, *Leadership and the New Science: Learning about Organization from an Orderly Universe* (San Francisco: Berrett-Koehler Publishers, 1992).

[3]Lana Moffitt, Director, Information Resources, UC Davis, Self-Evaluation, June 23, 1996.

[4] Peter Drucker, "The Relentless Contrarian," *Wired*, August 1996, 116-120.

Much as we would like to believe otherwise, and much as we strive to value diversity, human beings are wary of those whom they perceive to be different. Our colleagues on campus definitely perceive us to be different. Not only are the tools that we promote threatening to the comfort zone of the status quo, but we, the bearers of those tools, have also organized ourselves into strange and seemingly incomprehensible forms.

To exacerbate the problem, information technologists tend to have a different world view and different value systems than their colleagues in academia. IT people value the technology; they believe that bringing appropriate, high quality technology to bear on a problem will (or should) solve it. Consequently, they are bewildered when they are not only not credited with providing solutions for the campus, but are blamed for furnishing technical solutions that the rest of the community does not understand, that seem to come as a surprise, and that impose new management burdens on already overburdened staff. Whether correct or not, such perceptions constitute reality for those who hold them.

It has taken technology organizations a long time to come to the realization that, to counter such perceptions and help the campus gain confidence in IT's ability to play a key leadership role in the campus transformation process, the members of the campus community must feel comfortable about their understanding of that organization. In the example of the IT organization trying to mold an anachronistic accounting system to accommodate a fishnet or webbed structure, the organization was making an effort to present itself to campus decision-makers in a way that conformed to their experience and expectations. The example illustrates an attempt by an information technology organization to conform to campus expectations while meeting its own needs to recreate itself in a 21st-century form.

We need to couple this sensitivity to the viewpoint of our campus colleagues with a communication strategy that recognizes that people trust those whom they perceive to understand their viewpoint. IT leaders must take responsibility for developing, executing, and sustaining a multifaceted, comprehensive communication (read "public relations") plan. The plan should focus on hearing and understanding what the campus wants. This means everything from the obvious (e.g., focus groups and surveys), to employing multiple formats for providing information and getting feedback on its usefulness (e.g., brown bags, newsletters, newsgroups, committees, work groups), to training IT staff at all levels on how to take ownership of problems without becoming overburdened.

Human beings want personal interaction; they want to be heard. If they feel that they have been left out of the process, they will ignore the value of the finest technological innovations we implement and, instead, blame us for implementing them. This is why the Gartner Group continually places so much emphasis on relationship-building in its publications— on the so-called soft skills as opposed to the hard, technical skills.[5]

I bristle when a staff member dumps a problem that he or she has created on me without offering possible solutions. Consider how our chancellors, presidents, and provosts must feel when we sell the technology, create enormous demand for it, and then turn up in their offices demanding huge sums of money to meet that demand. Although they may not blame us for our evangelical proclivities, at the very least they must shudder when they see our names on their calendars. That is not a good way to go about getting included in the senior administrative team. Even when chief executive officers give lip service to the need for change, they usually shrink from our methods of "facilitating" it. We have at our disposal the technologies that enable change to bypass valued consensus-building processes and to happen at a pace that alarms, rather than reassures, even when that change is desired. In effect, our tools become weapons and we become the enemy.

If we are ever to gain credibility, we must learn to lead through influence instead of direction. We need to influence the decision-making process, not convince the decision-makers that our solutions are the best. The distinction is subtle but fundamental.

John Oberlin of the University of North Carolina points out that

> Developing a business case for information technology in higher education is difficult. Colleges and universities have their own unique brand of conven-

[5] Gartner Group, Research, Advisory & Strategic Planning Services.

> tional wisdom and peer review that manages most critical decisions well. Information technology seems to be an exception. It doesn't fit well with the existing political system and decision-making structure. For example, deans ... [and] institutional financial officers are ... out of the IT decision-making loop. ... All three parties— deans, financial officers, technologists— see a different set of facts.[6]

Oberlin points out that when technologies are adopted they become invisible.[7] That is why the campus community has a short memory for the benefits produced by technological solutions. On the other hand, the campus community has a very long memory for the disruption caused by the change process that usually accompanies the technological innovation. We are generally credited with the latter.

We need to break ourselves from the habit of selling the technology and focus on fitting into the background. That means concentrating on forming alliances with other units, such as the library, and letting them argue the merits of the technology. It means bringing faculty into the IT organization, e.g., as faculty fellows, and letting them present the technology to their colleagues in, and on, their own terms and on their own turf. It means using committees to make and vet policy recommendations and letting a committee member be the point person in the process. In short, it means learning to value and participate in the campus consensus-building processes instead of trying to drive the decision by arguing the merits of the technology. We need to be partners with the senior administration in the roll-out and support of information technology and in facilitating the change that these technologies enable.

The effective IT leader learns to work with and within the campus culture and conventions. Learning the art of leading from the background is fundamental to our ability to influence the direction of change on our campuses.

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[6] John L. Oberlin, "The Financial Mythology of Information Technology: The New Economics," *CAUSE/EFFECT*, Spring 1996, 28; http://www.cause.org/information-resources/ir-library/abstracts/cem9616.html

[7] Oberlin, 22.

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Making It Happen:
Leadership in a Transformational Age

by Patricia Battin

Let me exhort everyone to do their utmost to think outside and beyond our present circle of ideas. For every idea gained is a hundred years of slavery remitted.

— Richard Jefferies
"The Story of My Heart" 1883

"Bury me on my face," said Diogenes; and when he was asked why, he replied, "Because in a little while everything will be turned upside down."

The opportunity to contribute to this publication on leadership is both flattering and daunting, because writing on leadership and managerial style from the perspective of past experience in this new age of technological transformation and upheaval is an exercise in self-deception. The dispensing of benign advice and wisdom accumulated from decades of managing library and information services in a relatively stable and predictable environment that no longer exists is useless to those who must grapple with today's challenges. Consequently, I offer not what was successful in the past in managing the onset of technological change but what I think will be required of those who will lead the transformation of 19th- and 20th-century compartmentalized information systems into a 21st-century seamless and coordinated multimedia array of information resources integrating administrative and scholarly information, services, and technology.

Perhaps one of the most devastating impacts of digital information technology on the higher education community, arguably the last bastion of institutional conservatism, is the imperative to change the very nature of the organizational and financial structures that have created and supported the existing strength and vitality of American higher education. The most difficult challenge faced in an era of transformational change is the recognition that what have been our strengths will become our liabilities if we do not act in time. Brittle books and deferred maintenance of campus buildings are two powerful cautionary examples of great assets becoming crushing liabilities. I would add to this list the traditional governance, financial, and organizational structures based on the characteristics of print-on-paper technology that have contributed so heavily to the

stability and quality of American higher education.

It has become painfully evident that the promise of a rapid, money-saving electronic transformation of learning, teaching, and research has been premature and oversimplified by technology gurus and visionaries whose interests are focused on the technical potential rather than the specialized information requirements of working scholars in a variety of disciplines, the entrenched and resistant organizational and managerial bureaucracies of higher education, and the unique leadership talents necessary to effect the transition. Traditional budgetary procedures supported initial investments without recognizing the unrelenting need for continuing hardware and software replacements and upgrades; technical access was widely enhanced at the expense of intellectual access and archival reliability; the capacity to handle the rapidly increasing volume of demand as users adapted to new options and services has quickly become inadequate; the costs and technical complexity of digitizing existing print resources have been seriously underestimated; and requirements for continuing educational opportunities for both information users and providers have been vastly misunderstood. And even more significantly, the comfortable assumption that each new technology or management style will substitute for another in a one-size-fits-all formula vastly underestimated the complex interactions of technology with the human mind.

As librarians have promised for years, books and paper will not disappear. A recent article in the *New York Times* described the booming business of selling printed books, not digitized text, directly to readers via personal computer services. Digital capacities continue to be add-ons rather than replacements. But what must change are our human systems for organizing, managing, and financing continuing access to knowledge, be it through books, electronic databases, or lectures in the classroom. We can't graft digital technology onto our existing system of social organization—the very fabric of our society—which has been designed around the characteristics of print-on-paper technology. We must learn to manage hybrid systems in which the newcomer—information technology—will determine the nature and design of our systems for managing scholarly information. We will have to learn how to distinguish and manage the strengths and weaknesses of a broad spectrum of technologies. Those of us in higher education will undoubtedly live in a hybrid environment for the foreseeable future. Our challenge will be to utilize the power of technology to enhance the intellectual mission of the institution rather than be defined by it.

Leading a transformational process and managing the fluid and chaotic transition period requires skills vastly different from those needed for ensuring "administrative law and order" in a stable, predictable environment. Rules no longer apply, boundaries disappear daily, ambiguity prevails, and we see the future, if at all, darkly through a glass. Where our spheres of responsibilities used to have well-defined borders, the only boundary is the new frontier. Effective leadership will require an extraordinary ability to maintain a delicate and continually changing balance in the management of technical, financial, and human resources to serve the academic mission of the institution. Print-on-paper technology enabled us to build the huge bureaucracies we call research libraries, information technology divisions, and universities. The characteristics of print-on-paper shaped our research methodologies and concepts of scholarly services, permitted selective autonomy or collaboration on our own terms, and enabled our bureaucracies to become less responsive to the needs of our clientele as we turned our interests inward to managing the operation as an end in itself.

I believe that a major characteristic of networked digital technology—the creative tension between the simultaneous capacity for decentralization and the requirement for central coordination to ensure broad and unencumbered access—is the key to effective leadership in the 21st century. Judicious decisions blending the strengths of the past, the demands of the present, and the uncertainty of the future will have to be balanced continually from both local and inter-institutional perspectives within an organizational structure designed to support the past. The mission of librarianship has always been to preserve the past, serve the present, and create the future. Until the advent of digital information technologies, creating the future essentially implied an extension of the status quo within the traditional organizational structure. In a digital environment, new patterns for funding collaborative enterprises, network compat-

ibility and hardware/software interoperability, institution-wide access for site-independent information resources, integrated administrative data systems, shared development of hardware/software with the corporate sector and other institutions, collaborative preservation and archiving responsibilities all pose managerial challenges that can no longer be isolated or compartmentalized within comfortable definitions of turf and authority.

We talk endlessly and incessantly of our visions of the digital future, but few voice the threatening proposition that to achieve the vision we must first destroy the familiar barriers to true collaboration and sharing of responsibility, steps that will revolutionize our traditional assumptions and managerial comfort level. I think the greatest psychic distance in the world is between the vision of the future and making it happen. And the obligation of leadership is to translate the talk into effective action.

I think the most successful leadership styles will be those that respond to this reality and blend bold leadership and informed risk-taking with widespread consultation and consensus when appropriate. Too often events have overtaken effective action and resulted in costly missed opportunities because of long-drawn-out consensus processes that worked successfully in a low-technology environment but now serve to excuse or justify inaction. In our zeal to find templates and formulas for management style, we have permitted both authoritarian decision-making and consensus as management techniques to become mindless ends in themselves rather than tools to be used in achieving the necessary balance. Leaders of the transition—those who will make it happen at every level of the organization—will need acute powers of analysis, abundant common sense, vibrant creativity, reasoned judgment, and a passionate commitment to the mission and goals of the extended higher education community.

A major obligation of leadership in a time of wrenching transition is the active development of the successor generation. There is no time to wait for the academy to debate the educational needs for an uncertain future. A major casualty of the chaotic transition period of the past two decades has been the decline of mentoring in the information professions. Mentoring in the library profession was a specialty of the old boys' network and served admirably to provide a continuing leadership cadre in an era of shared assumptions, prejudices, and stability. New vitality and talent were infused with the opening of opportunities to the formerly excluded, but unhappily the tradition of mentorship, rather than the manner in which it was practiced, was viewed with suspicion and largely abandoned. I believe that a primary leadership responsibility is the assurance of a talented successor generation capable of handling future challenges. In the old days, that meant bringing up the young in one's own image. Today, it means identifying and attracting new talent from unprecedented sources into an ever-changing and expanding profession, helping those with traditional credentials and experience develop the qualities necessary for success in an environment of ambiguity, and providing productive learning experiences to build on existing strengths and minimize weaknesses. Above all, it means the willingness to delegate, rather than abdicate, responsibility and accountability.

The "digital library" is an instructive example of the clash between the new and the old; the need to explore beyond one's own set of ideas, assumptions, and talent pool; and the challenge to reconcile different points of view in the interests of the institutional mission. To the computer scientists at the National Science Foundation, who created a multi-million-dollar program to encourage research into the digital library concept, the term signifies the technological infrastructure. To librarians, who hoped to apply for these grants, the term implies the storage and management of digital information. To college and university administrators, seeking to restrain library costs, it means cheap and easy ways to provide access to knowledge resources traditionally held in libraries; and to the humanist scholar, it means the demise of the book as the primary information medium. The digital library is all of these—and more. The use of the term itself is dangerously misleading by imprisoning us in an image of the past. With its familiar connotations of turf and containment, "digital library" illustrates either our inability or our unwillingness to accept the inevitability of unprecedented collaboration, sharing of expertise and responsibility, and new integrated working relationships.

During the past year under the aegis of the Commission on Preservation and Access, a group of fifteen research libraries formed the National Digital Library Federation (NDLF) to establish the governance structure and technical infrastructure for a collaboratively managed, physically distributed, not-for-profit repository of digital information in support of instruction and research. The Federation seeks to integrate the unique characteristics and capabilities of digital technologies with the existing strengths of the nation's research libraries and institutions of higher education to provide convenient and affordable access to our intellectual and cultural heritage. The group has emphasized the importance of a federated organization that respects and accommodates locally driven decision-making at each institution, while at the same time identifying and endorsing those processes and practices necessary to support a coherent network of scholarly information resources and services. In recognition of the fact that building a national digital information service cannot be confined to any one group of experts, the NDLF's Planning Task Force identified the requirements from the library profession, sought out new relationships and collaborative activities with other players, and agreed on three major areas where librarians' contribution of knowledge and expertise is critical to support the higher education mission: discovery and retrieval of information; intellectual property rights and economics; and the archiving of digital information. The task is all the more difficult to achieve because of institutional and professional barriers unsuited to the characteristics of digital technology.

The military establishment is often criticized for basing their strategies in a new conflict on the lessons learned from the previous war rather than assessing the new situation from the perspective of a constantly changing reality. Those of us responsible for the management of information resources are also vulnerable to the charge of "fighting the last war." Despite our daily exposure to the enormous transformational power of digital information technologies and the growing dysfunction of our environment as we try to stuff those technologies into our traditional management structures, we continue to define the battlefront as one between libraries and information technology centers. That opportunity was missed some years ago. In today's environment, a simple merger is a fruitless attempt to continue the traditional pattern of university organization rather than to begin the challenging and unsettling process of conceptualizing a whole new dynamic for managing information resources. It may well be that the next several decades will require fluid and changing organizational structures combining both primary responsibilities for some functions with more broadly shared decision-making mechanisms for others in search of a productive balance. Managing information technology will undoubtedly reflect the characteristics of the technology itself—lack of stasis, continuing unpredictable change, reconciling contradictory capabilities, serving multiple audiences, and creating new interdependencies. One of the most difficult attributes for 21st-century leaders will be the ability to balance an understanding of the values, strengths, and vitality of our system of higher education to date with the capacity to conceptualize and bring into being a discontinuous future so that we gain more than we destroy.

Systems & Computer Technology Corporation

COMPANY PROFILE

Systems & Computer Technology Corporation (SCT) is a leader in administrative software and information technology management services for higher education institutions, government jurisdictions, courts, utilities, and manufacturing and distribution companies worldwide. For twenty-eight years, SCT Education Systems has helped higher education institutions better manage their information systems and meet critical objectives. Today, SCT Education Systems serves more than 1,100 colleges and universities worldwide.

SCT's wide range of information system solutions for higher education includes the Banner2000™ and IA-Plus™ administrative applications and OnSite℠ IT management services, the computing management alternative. These solutions help clients increase productivity, reduce costs, and provide better services to their students, faculty, and staff.

SCT is publicly held and headquartered in Malvern, Pennsylvania, a suburb of Philadelphia.

INVOLVEMENT IN HIGHER EDUCATION

Since 1968, SCT has specialized in meeting the information systems requirements of universities and four-year and community colleges. SCT was a pioneer in providing online, integrated administrative systems for higher education in the 1970s. Today, SCT continues to lead the way with the first Web-enabled student information product on the market with viewing and updating capabilities. Also, SCT helped to introduce the concept of outsourcing, or computer services partnerships with education institutions, providing on-site management, planning, and staffing of an institution's data processing operations.

PRODUCTS AND SERVICES

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Banner2000 is an object-based, net-centric enterprise solution offering the added value of rules and process workflows that institutions configure to implement business processes and achieve enrollment goals. Banner2000 combines more than eight years of built-in functionality with the latest Oracle® RDBMS and developer tools. Coupled with application-independent business logic, object technology underlies BANNER Object:Access*, which groups ODBC-compliant information into functional categories to make reporting fast and consistent. A truly flexible multi-tiered client/server solution, Banner2000 runs on a full range of UNIX servers and the clients' choice of desktop machines.

In addition to Banner2000, SCT Education Systems offers the IA-Plus Series, a full suite of support systems for mainframe environments and a solid core of administrative functions. A graphical user interface and complete range of information access products enrich the already robust spectrum of IA-Plus features.

World Wide Web products from SCT Education Systems let today's technology-savvy students, faculty, and staff view and update their personal information and manage job-related activities on the Web any time, any place, on any net with any browser and no learning curve. Other information-access tools—interactive voice response and kiosks—along with complete imaging and EDI capabilities complement the Banner2000 and IA-Plus product lines.

Professional services, based on best practices models covering all facets of the higher education enterprise, and customer support ensure that SCT Education Systems clients maximize performance from their Banner2000 and IA-Plus products.

**Patent pending.*

OnSite Services

OnSite services, provided through SCT's Technology Management Division (TMD), is the information technology management alternative that represents an affordable way to improve an institution's administrative operations. Through an OnSite services outsourcing partnership, a college or university contracts for management, staffing, operation, and financing of its computing resources. This arrangement supports the institution's efforts to improve service, increase productivity, and reduce costs, while reallocating resources to bolster its core mission of higher education. OnSite services can be effectively bundled with SCT's Banner2000 and other software, as well as with the client's existing hardware or with new equipment.

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As SCT Education Systems and its offerings continue to grow, the division has intensified its role as a full-service provider of innovative information and business services. By incorporating process workflows into its products and creating industry best practices models across the education enterprise, SCT is supporting its clients in all their critical business processes: Forecast to Enroll, Matriculate to Educate, Plan to Fund, and Manage the Enterprise.

In parallel with its aggressive design of process workflows and best practices models, SCT has established the Object Technology Center (OTC). Responsible for investigating and deploying object methodologies and tools, the OTC represents a whole new development paradigm. The software engineers assigned to the OTC will monitor and influence software industry standards to refine SCT's solution architectures and deliver products faster with high quality. The result? ... World-class, net-centric business solutions incorporating a zero learning curve and industry best practices for global markets.

At CAUSE96, SCT invited participants to view Banner2000 and the newest Web-enabled applications for higher education, Web for Faculty & Advisors and Web for Employees. Also, CAUSE96 participants had the opportunity to learn about successful application of SCT Education Systems' latest products through a series of videos from client institutions.

Systems & Computer Technology Corporation, a CAUSE member since 1975, has participated in the CAUSE annual conference through vendor presentations since 1974, hosted exhibits since 1982, and sponsored other activities including Fun Runs, receptions, and golf tournaments. SCT has also sponsored the CAUSE/EFFECT *Contribution of the Year Award since 1982 along with publication of* The Best of *CAUSE/EFFECT* 1978-91. *The company has sponsored the CAUSE* ELITE *Award for Exemplary Leadership and Information Technology Excellence since 1992.*

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